

CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1 1. (Currently amended) A method for providing film grain information comprising the steps
2 of:

3 characterizing an input image information stream in accordance with ~~the difference~~
4 ~~between the~~ ~~an~~ input image stream and a filtered input image stream to provide information
5 indicative of film grain within the image stream, the film grain information including at least one
6 parameter among a set of possible parameters specifying different attributes of the film grain in
7 the image stream;

8 encoding the film grain information for subsequent transmission.

1 2. (Previously presented) A method for providing film grain information comprising the
2 steps of:

3 characterizing an image information stream to provide information indicative of film
4 grain within the image stream, the film grain information including at least one parameter among
5 a set of possible parameters specifying different attributes of the film grain in the image stream;
6 and

7 encoding the film grain information for subsequent transmission;

8 wherein the set of parameters includes a plurality of correlation parameters and a plurality
9 of intensity-independent parameters.

1 3. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a spatial correlation in a perceived pattern of film grain.

1 4. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a correlation between color layers.

1 5. (Original) The method according to claim 2 wherein at least one correlation
2 parameter defines a temporal correlation resulting from previous processing the image sequence.

1 6. (Original) The method according to claim 2 wherein at least one intensity-
2 independent parameters defines an aspect ratio of the film grain.

1 7. (Original) The method according to claim 1 wherein at least one parameter defines
2 intensity of a random component of the film grain.

1 8. (Original) The method according to claim 2 wherein at least one of the intensity-
2 independent parameters defines a color space and blending mode operation used to merge the
3 simulated film grain with the image.

1 9. (Original) The method according to claim 1 further comprising the step of
2 transmitting the film grain information transmitted out-of band with respect to transmission of
3 image representative information.

1 10. (Original) The method according to claim 1 further comprising the step of
2 transmitting the film grain information transmitted in band with respect to transmission of
3 image representative information.

1 11. (Original) The method in accordance with claim 2 where the set of parameters are
2 computed in accordance with a second order auto regression representation of the spatial
3 correlation and a first order regression representation of the cross-color and temporal
4 correlations.

1 12. (Original) The method according to claim 3 wherein the at least one parameter
2 describing the spatial correlation of the grain is established in accordance with a spatial
3 convolution model.

1 13. (Original) The method according to claim 3 wherein the at least one parameter
2 describing the spatial correlation of the grain is obtained from cut frequencies of a filter in the
3 Fourier domain.

1 14 (Original) The method according to claim 1 wherein the encoding step comprises
2 encoding the film grain information according to the ITU-T H.264 video coding standard.

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1 15. (Currently amended) Apparatus for providing film grain, comprising:
2 first means for characterizing an input image information stream in accordance with ~~the~~
3 ~~difference between the~~ ~~an~~ input image stream and a filtered input image stream to provide
4 information of film grain within the image stream, the information including at least one
5 parameter among a set of possible parameters specifying different attributes of the film grain in
6 the image stream;

7 second means encoding the film grain information for subsequent transmission.

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1 16. (Previously presented) Apparatus for providing film grain, comprising:
2 first means for characterizing an image information stream to provide information of film
3 grain within the image stream, the information including at least one parameter among a set of
4 possible parameters specifying different attributes of the film grain in the image stream;
5 second means encoding the film grain information for subsequent transmission; and
6 wherein the set of parameters includes a plurality of correlation parameters and a plurality
7 of intensity-independent parameters.

1 17. (Original) The apparatus according to claim 16 wherein at least one correlation
2 parameter defines a spatial correlation in a perceived pattern of film grain.

1 18. (Original) The apparatus according to claim 16 wherein at least one correlation
2 parameter defines a correlation between color layers.

1 19. (Original) The apparatus according to claim 16 wherein at least one correlation
2 parameter defines a temporal correlation resulting from previous processing the image sequence.

1 20. (Original) The apparatus according to claim 16 wherein at least one intensity-
2 independent parameters defines an aspect ratio of the film grain.

1 21. (Original) The apparatus according to claim 15 wherein at least one parameter defines
2 intensity of a random component of the film grain.

1 22. (Original) The apparatus according to claim 16 wherein at least one of the intensity-
2 independent parameters defines a color space and blending mode operation used to merge the
3 simulated film grain with the image.

1 23. (Original) The apparatus in accordance with claim 16 wherein the first mean
2 computes the set of parameters in accordance with a second order auto regression representation
3 of the spatial correlation and a first order regression representation of the cross-color and
4 temporal correlations.

1 24. (Original) The apparatus according to claim 17 wherein the at least one parameter
2 describing the spatial correlation of the grain is established in accordance with a spatial
3 convolution model.

1 25. (Original) The method according to claim 17 wherein the at least one parameter
2 describing the spatial correlation of the grain is obtained from cut frequencies of a filter in the
3 Fourier domain.

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1 26. (Original) The apparatus according to claim 15 wherein second means encodes the
2 film grain information according to the ITU-T H.264 video coding standard.